

side margins and the end margin can be chamfered 64. The mounting member 38 can be formed with one or more corresponding chamfered corners 62.

During operation, the bag docking assembly 10 is engaged with the dirty air outlet nozzle 20 on the vacuum cleaner 12. The outer bag 22 can first be positioned over the dirty air outlet nozzle 20, and the bag docking assembly 10 is then positioned to hold the outer bag 22 in place.

The anchor member 36 can be installed by first positioning the central opening 40 in the anchor member 36 directly over the dirty air outlet nozzle 20. The anchor member 36 is then pressed so that a protrusion or a rim 43 on the dirty air outlet nozzle 20 is forced through the central opening 40 in the anchor member 36. The shape of the central opening 40 in the anchor member 36 is close enough to the shape of the dirty air outlet nozzle 20 that the rim 43 on the dirty air outlet nozzle 20 retains the anchor member in its proper position for operation. The engagement of first hinge member 48 with second hinge member 58 prevents the entrance channel 44 from distorting, locking the anchor member 36 onto the dirty air outlet nozzle 20.

The anchor member 36 can also be installed by having the engagement section 44 engage the dirty air outlet nozzle 20 from a transverse direction. The neck 46 is forced over the dirty air outlet nozzle 20 and resiliently recovers its original shape, holding the anchor member 36 onto the dirty air outlet nozzle 20. The rim 43 on the dirty air outlet nozzle 20 prevents the anchor member 36 from sliding off of the end of the dirty air outlet nozzle 20.

The mounting member 38 is pivotally attached to the anchor member 36 by the engagement of the first hinge member 48 and the second hinge member 58. In the preferred embodiment, where the first hinge member 48 is positioned for use at the bottom of the anchor member 36, the pivoting axis is substantially horizontal. Consequently, the mounting member 38 can rotate to a vertical orientation, as shown in FIG. 1, in which the second hinge member 58 is at the bottom, i.e., into the working position. From the working position, the mounting member 38 can rotate 180 degrees to a position in which the second hinge member 58 is at the top of the mounting member 38. Between these two positions, the mounting member 38 pivots through a number of orientations in which the mounting member 38 is directed away from the handle assembly 16 and toward the opening of the outer bag 22. In at least one of these positions, defined as a loading position, a user can remove a full vacuum bag 24 from the mounting member 38 and replace it with a new vacuum bag 24. The loading position can be separated from the working position by an angle greater than 90 degrees.

The vacuum bag 24 can be engaged with the bag docking assembly 10 by inserting the collar 28 between the channels 54 on the mounting member 38. When the vacuum bag 24 is fully engaged with the mounting member 38, the bag opening 26 aligns with the opening 52 in the mounting member 38. When the bag docking assembly 10 is rotated into the working position, the bag opening 26 aligns with and engages the dirty air outlet nozzle 20.

In one embodiment, the collar 28 is formed to have a sliding panel 32 that can move between an open and a closed position across the bag opening 26 (FIG. 6). The retainer member 60 has a substantially hemi-spherical portion 61 at its distal end having a beveled front edge 63 that engages the retainer opening 34 when the collar 28 is fully engaged with the mounting member 38. The engagement of the retainer member 60 with the retainer opening 34 operates to close the sliding panel 32 over the bag opening 26 upon removal of

the vacuum bag 24 from the mounting member 38. When the user removes the vacuum bag 24 from the mounting member 38, the hemi-spherical portion 61 of the retainer member 60 resists the force exerted by the user. The force necessary to move the sliding panel 32 is less than the force necessary to disengage the retainer member 60 from the retainer opening 34. As a result, the sliding panel 32 remains stationary as the collar 28 is removed from the mounting member 38. Once the sliding panel 32 is fully closed over the bag opening 26, a positive stop 66 in the collar 28 prevents the sliding panel 32 from sliding further. At this point, all of the force exerted by the user is transferred to the retainer member 60. This additional force frees the retainer opening 34 from the retainer member 60 and disengages the vacuum bag 24 from the mounting member 38.

In another embodiment, the collar 28 has a recess 65 constructed to surround the retainer member 60 when the collar 28 is engaged with the mounting member 38 (FIG. 5). The collar 28 does not have a sliding panel 32. Consequently, the recess 65 prevents the retainer member 60 from interfering with the collar 28.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

We claim:

✓ A vacuum cleaner bag docking assembly for use with a vacuum bag having a substantially rigid mounting collar surrounding a bag opening and a vacuum cleaner having a rotary air outlet nozzle configured to project through the bag opening and into the vacuum bag; the assembly comprising:

an anchor member having a central opening therein for closely, releasably receiving the dirty air outlet nozzle; and

a mounting member releasably coupled to the anchor member to retain the anchor member in engagement with the dirty air outlet nozzle, the mounting member having a portion thereof for engaging the collar to secure the vacuum bag to the mounting member for movement therewith; the mounting member having an opening oriented for registration with the bag opening; the mounting member pivotally connected to the anchor member for movement between a loading position in which the vacuum bag is inserted or removed from the mounting member and a working position in which the bag opening engages the dirty air outlet nozzle.

50 2. The assembly of claim 1 wherein the dirty air outlet nozzle has an engagement section for receiving the anchor member; the anchor member is composed of a resilient material; and the anchor member has an entrance channel continuous with the central opening and a neck at a point
55 along the entrance channel that is narrower than the engagement section, the anchor member being sufficiently resiliently deformable when the mounting member is disengaged therefrom to permit the anchor member to be mounted on or removed from the dirty air outlet nozzle and sufficiently rigid when the mounting member is engaged therewith to restrict the anchor member from being removed from the dirty air outlet nozzle.

3. The assembly of claim 1 wherein the loading position is separated from the working position by an angle greater than 90 degrees.

4. The assembly of claim 1 wherein the mounting member is substantially planar, the anchor member is substantially

planar, and the anchor member is constructed to have a shape complementary to the opening in the mounting member so that the assembly is substantially planar when in the working position.

5. The assembly of claim 4 further comprising a latch 5 operable to releasably retain the assembly in the working position.

6. The assembly of claim 5 wherein the latch comprises a protrusion extending from the edge of the anchor member that engages the opening in the mounting member when the 10 assembly is in the working position.

7. A vacuum cleaner bag docking assembly, as claimed in claim 1, for use with vacuum cleaner bags having a retainer opening in the collar, the assembly comprising:

a protuberance on the mounting member positioned to be received by the retainer opening in the collar to hold the bag in place after insertion.

8. The assembly of claim 7 for use with a vacuum cleaner bag having the retainer opening positioned on a sliding panel in the collar and wherein the protuberance located on the mounting member such that removal of the collar from the mounting member while the protuberance is engaged with the retainer opening causes the sliding panel to move from an open position in which dirt is permitted to enter and exit the bag opening to a closed position in which dirt is prevented from entering or exiting the bag opening.

9. An upright vacuum cleaner comprising:

a handle assembly, at least a portion thereof comprising a dirty air conduit; a dirty air outlet nozzle mounted to the handle assembly, the nozzle communicating with the dirty air conduit and projecting from the dirty air conduit for engagement with a vacuum bag;

an anchor member having a central opening for closely, 30 releasably receiving the nozzle, the anchor member being sufficiently deformable to permit the central opening to be engaged with or removed from the nozzle; and

a mounting member releasably connected to the anchor member and movable between a loading position in which the vacuum bag is inserted into or removed from the mounting member and a working position in which an opening in the vacuum bag engages the nozzle, the mounting member restricting deformation of the anchor member when connected thereto to restrict the anchor member from being removed from the nozzle.

10. The assembly of claim 9 wherein the loading position is separated from the working position by an angle greater than 90 degrees.

11. The assembly of claim 9 further comprising a latch operable to releasably retain the assembly in the working position.

12. A vacuum cleaner bag docking assembly, as claimed in claim 9, for use with vacuum bags having a retainer opening in the collar, the assembly comprising:

a protuberance on the mounting member positioned to be received by the retainer opening in the collar to hold the vacuum bag in place after insertion.

13. The assembly of claim 12 for use with a vacuum cleaner bag with the retainer opening positioned on a sliding panel in the collar and wherein the protuberance is located on the mounting member such that removal of the collar from the mounting member while the protuberance is engaged with the retainer opening causes the sliding panel to move from an open position in which dirt is permitted to enter and exit the bag opening to a closed position in which dirt is prevented from entering or exiting the bag opening.

14. A vacuum cleaner bag docking assembly, as claimed in claim 1, for use with vacuum cleaner bags in which the collar has opposing side margins, an end margin, and corner portions between the end margin and the opposing side margins, and in which at least one corner portion is beveled at an angle to the end margin and the adjacent side margin; the bag docking assembly comprising a portion which closely conforms to the at least one corner portion.

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